

2/2 020

UNCLASSIFIED

PROCESSING DATE--30OCT70.

CIRC ACCESSION NO--AP0107448

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. INFLUENCE OF SEVERAL EFFECTS ON THE BACKGROUND INTENSITY FOR X RAY FLUORESCENCE IN THE LONGWAVE SPECTRAL REGION 2-10 ANGSTRUM (SUBALPHA LINES OF TI, FE, SI, AND MG) IS DISCUSSED. NONE OF THE DISCUSSED PHENOMENA IS THE DOMINATING ONE FOR EXPLANATION OF THE BACKGROUND; THUS OTHER EFFECTS NEED TO BE CONSIDERED.

FACILITY: INST. GEOKHIM., IRKUTSK, USSR.

UNCLASSIFIED

1/2 020

UNCLASSIFIED

PROCESSING DATE--30OCT70

TITLE--X RAY BACKGROUND IN THE LONGWAVE SPECTRAL REGION -U-

AUTHOR-(04)-REVENKO, A.G., PAVLINSKIY, G.V., LOSEV, N.F., AFONIN, V.P.

COUNTRY OF INFO--USSR

SOURCE--ZAVOD. LAB. 1970, 36(2), 166-9

DATE PUBLISHED-----70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--FLUORESCENCE, X RAY, SPECTRUM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1989/0919

STEP NO--UR/0032/70/036/002/0166/0169

CIRC ACCESSION NO--AP0107448

UNCLASSIFIED

USSR

UDC 615.471:[614.777+628.19]074:543.42.062

SINEL'NIKOV, V. Ye., TIMAKHOV, O. N., ININ, Yu. S., IKONNIKOVA, S. V., GIKKEL', A. A., GONCHAROV, A. T., AFONIN, V. I., PERSIYANTSEVA, V. B., and SOKOLOV, B. K., Central Design Bureau and Pilot Plant, USSR Academy of Medical Sciences, Moscow and Institute of Biology of Inland Waters, USSR Academy of Sciences, Borok, Yaroslavl Oblast

"A Multipurpose Spectrofluorimeter to Study Natural and Polluted Water"

Moscow, Gigiyena i Sanitariya, No 1, 1973, pp 65-68

Abstract: The akva-MF spectrofluorimeter developed by the authors can be used for rapid determination of individual organic and mineral compounds present in water, for automatic regulation of fluorescent substances in a stream, for detection in lakes and seas of water masses differing in chemical composition and origin, and for study of the conversion and breakdown of compounds under the influence of biological and physicochemical factors. Analyses can be made in the laboratory, in the field, or on a research vessel. The spectrum of fluorescent compounds can be obtained directly at the sampling site. The apparatus is a single-beam recording spectrofluorimeter designed to function in the visible and UV regions of the spectrum. With the use of interchangeable attachments, it can record spectra of fluorescence, excitation, and phosphorescence in a solution as well as substances separated in chromatographic zones on paper.

1/1

USSR

UDC 669.3:539.214:539.377 2

LAYNER, D. I., TSYPIN, M. I., NOVIKOV, A. V., SHEVAKIN, Yu. F., SOLLER-TINSKAYA, Ye. S., AFONIN, M. P., State Scientific Research and Design Institute of Alloys and Nonferrous Metalworking, Moscow

"Ductility, Brittleness and Superplasticity of Copper"

Moscow, Doklady Akademii Nauk SSSR, Vol 209, No 1, Mar/Apr 73, pp 80-82

Abstract: The authors investigate the particulars of behavior of specimens cut from copper ingots and deformed by tension over a broad temperature range (from -196 to 1000°C, tests at 100°C and higher being done in vacuum) at strain rates from 10^{-5} to 10^{-2} s⁻¹. The deformation curves were processed on the "Minsk-32" digital computer. The results show the existence of two fundamentally different mechanisms of high-temperature plastic deformation of copper, in one of which superplasticity is observed due to periodic recrystallization of the metal at the focus of deformations. The existence of such a mechanism of superplasticity may be considered proved, at least for pure metals.

USSR

LAYNER, D. I., TSYPIN, M. I., NOVIKOV, A. V., SHEVAKIN, Yu. F., SOLLERTINSKAYA, Ye. S., AFONIN, M. P.

"Ductility, Brittleness and Superplasticity of Copper"

Doklady Akademii Nauk SSSR, Vol 209, No 1, 1973, pp 80-82.

Abstract: This work studies the peculiarities of the behavior of specimens (gage section 6 x 30 mm) cut from copper ingots and deformed by extension over a broad range of temperatures (from -196 to +1000°C, tests at 100°C and over conducted in a vacuum) and deformation rate (10^{-5} - 10^{-2} sec $^{-1}$). Deformation curves were processed on a Minsk-32 computer. Three types of copper were tested: M1, containing 99.95% Cu, 0.02% O $_2$; MOB, containing 99.99% Cu and $(5-10) \cdot 10^{-4}$ % O $_2$; and MVCh, containing 99.994% Cu and $(5-10) \cdot 10^{-4}$ % O $_2$. The work establishes the existence of two mechanisms for plastic deformation of copper at high temperatures. One exhibits superplasticity by periodic recrystallization of the metal in the deformation center. The existence of this superplasticity mechanism can be considered experimentally proven at least for pure metals.

1/1

USSR

AFONIN, L. A.

"A Language for the Reference-Information System of an Industrial Enterprise ACS"

Obshch. Teoriya Sistem [General Systems Theory -- Collection of Works], Kiev, 1972, pp 56-69 (Translated from Referativnyy Zhurnal Kibernetika, No 6, 1973, Abstract No 6V675).

Translation: One of the primary tasks involved in the development and introduction of automated control systems is the creation of a reference-information system, based on the total requirements for information and including the set of input documents and electronic computer equipment. A possible language for a reference-information system and a structure for its processor are described.

USSR

AFONIN, L. A. and KOLESNIKOV, N. A.

"Formalization of Language for Report Documentation"

Lingvist. Probl. Avtomatiz. Inform. Poiska [Linguistic Problems of the Automation of Information Retrieval -- Collection of Works], Kiev, 1972, pp 13-21 (Translated from Referativnyy Zhurnal Kibernetika, No 9, 1973, Abstract No 9V821).

Translation: This article formalizes a certain language for reference-information systems for industrial enterprises and describes a method of its realization. The language is designed for workers in the planning and economic services of enterprises and allows primary and production information to be recorded in computers and extracted in the form of references, tables and report forms.

Ye. Burgina

2/2 030 UNCLASSIFIED PROCESSING DATE--23OCT70
CIRC ACCESSION NO--AP0109408
ABSTRACT/EXTRACT--(U) GP-O- ABSTRACT. INVESTIGATION OF THE CHANGE OF Q
VALUES OF RESONATORS WITH THE APERTURE OF THE SPHERICAL MIRROR AND OF
THE CHANGE OF THE RADIUS OF THE CAUSTIC SURFACE IN THE VICINITY OF
MIRRORS. MEASUREMENT RESULTS ARE COMPARED WITH THEORETICAL DATA.

UNCLASSIFIED

1/2 030 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--INVESTIGATION OF SPHERICAL MIRROR OPEN RESONATORS IN THE 2 MM
WAVELENGTH BAND -U-
AUTHOR-(02)-AFONIN, D.G., PIROGOV, YU.A.
COUNTRY OF INFO--USSR *A*
SOURCE--VESTNIK MOSKOVSKOGO UNIV. FIZ. ASTRON. (USSR), VOL. 11, NO. 1.
P.93-4 1970
DATE PUBLISHED-----70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--LASER MIRROR, RESONATOR Q FACTOR, OPEN RESONATOR

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1990/1324 STEP NO--UR/0188/70/011/001/0093/0094
CIRC ACCESSION NO--AP0109408
UNCLASSIFIED

USSR

UDC: 539.43

Kuz'menko, V. A., Afonin, A. I., Kiev

"Dissipation of Energy in Metals in High-frequency Fatigue Tests. Report 11"

Kiev, Problemy Prochnosti, No 7, 1972, pp 82-85.

Abstract: The dissipation of energy in nickel and titanium-based alloys was measured with cyclical extension and compression at 10 KHz on the basis of the rate of heating and cooling of the test specimen. The amplitude dependences of specific losses in the material and their dependence on the number of loading cycles in the process of fatigue testing are presented.

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USSR

UDC 539.43

AFONIN, A. I., KUZ'MENKO, V. A., and SHEVCHUK, A. D., Kiev

"Problem of the Influence of Loading Frequency on Fatigue Strength of Metal"

Kiev, Problemy Prochnosti, No 4, Apr 72, pp 62-67.

Abstract: Results are presented from fatigue testing with symmetrical extension-compression cycles at 10 and 20 KHz for copper, armco iron, type 45 steel, chrome steels, nickel alloys, and type VT3-1 alloy. The results produced are compared with the results of low-frequency tests. It is found that the influence of loading frequency on cyclical strength is greater, the higher the level of energy dissipation in the material and the more ductile the metal.

USSR

UDC 539.4

TROSHCHENKO, V. T., AFONIN, A. I., and KHAMAZA, L. A., Kiev

"Investigation of Fatigue Failure Energy Criteria for Certain Metals at Low and High Loading Frequencies"

Kiev, Problemy Prochnosti, No 6, 1973, pp 3-7

Abstract: Results are presented from an investigation into the fatigue strength and energy dissipation in the process of cyclic loading of nickel alloys EI826 and EI437B and steel 1Kh17N2Sh when tested at very different loading frequencies -- 16 hz and 10 khz. An analysis is given on existing energy criteria of fatigue failure in metals which was based on consideration of irreversible energy dissipation in the process of cyclic loads. It is shown that the functional relationship

$$N_p/D - D_r(D/D_r)^{\alpha} / = \text{constant}$$

can be used as the criteria of fatigue failure in metals. This relationship is independent of loading frequency and number of cycles. 4 figures, 1 table, 12 bibliographic references.

1/1

USSR

UDC 538.311.001.24

AEONIN, A. A., FODCHERNYAYEV

"Complex Surface Resistance and Magnetic Characteristics of a Ferromagnetic Core of Rectangular Cross Section"

Kiev, Kibernetika i Vychislitel'naya Tekhnika, Metody Rascheta Elektromagnitnykh Poley na Etsvm, No 11, 1971, pp 128-133

Abstract: A study was made of a ferromagnetic core of rectangular cross section placed in a longitudinal, variable magnetic field. Expressions are presented for determining the complex surface resistance and equivalent magnetic permeability. Good comparison of the calculated and experimental values of these variables is shown, and the relation between the complex surface resistances of ferromagnetic cores of circular and rectangular cross section is established.

The complex surface resistance of ferromagnetic cores of rectangular cross section can be calculated by formulas derived under the assumption of constancy of the magnetic permeability if the equivalent magnetic permeability of the investigated samples is used. The procedure for determining the equivalent magnetic permeability with respect to experimental values of the complex surface resistance of ferromagnetic samples of rectangular cross section is confirmed experimentally. Comparative curves are presented for the experimental and theoretical data.

1/1

USSR

AFONIKOVA, N. S., et al., Fizika Tverdogo tela, Vol 15, No 4, 1973, pp 1096-1101

noticeable drop in T_c . This indicates the formation of an ω -phase in them which, as is known, does not occur in such alloys for any heat treatment conditions.

Conclusions are drawn from the presented data regarding the boundaries of the region of existence of the ω -phase in the titanium-niobium alloys at room temperature.

A schematic is presented of the region of stability of the ω -phase in P-C-coordinates at 300° K. The P-C-plane is divided into three regions: region I where there are structures corresponding to the initial state of the alloys after quenching and where the application of pressure still does not lead to the occurrence of the ω -phase; region II where the ω -phase exists combined with the initial phases and region III where one ω -phase is stable.

2/2

USSR

AFONIKOVA, N. S., DEGTYAREVA, V. F. LITVIN, YU. A., RABIN'KIN, A. G.,
SAKOV, YU. A.

"Superconductivity and the Structure of Titanium Alloys with Niobium Subjected to Hydrostatic Pressures of up to 120 kilobars"

Leningrad, Fizika Tverdogo tela, Vol 15, No 4, 1973, pp 1096-1101

Abstract: A study was made of the structure and superconducting properties of Ti alloys with 10-90 atomic percent Nb subjected to pressures of up to 120 kilobars. Radiographic analysis indicated that in alloys with 10 and 20 atomic percent Nb under the effect of 30 and 50 kilobars of pressure, respectively, an ω -phase is formed and retained after loading in the metastable state at $P = 1$ atmosphere. This is accompanied by a significant drop in T_c of the alloys. In an alloy with 10 atomic percent Nb after treatment at $P = 120$ kilobars in the metastable state, the structure of 1 ω -phase was recorded. The structure and lattice parameters of the ω -phase obtained as a result of the pressure or ordinary heat treatment are similar; however, the formation of the ω -phase during heat treatment leads to a rise in T_c . A study was made of the possible causes of the different effect on T_c of the processes of formation of the ω -phase under pressure or during heat treatment. In alloys with 30 and 40 atomic percent Nb, the $P = 120$ kilobar effect also caused a 1/2

USSR

AFONIKOVA, N. S., et al., Fizika Tverdogo tela, Vol 15, No 4, 1973, pp 1096-1101

noticeable drop in T_c . This indicates the formation of an ω -phase in them which, as is known, ^c does not occur in such alloys for any heat treatment conditions.

Conclusions are drawn from the presented data regarding the boundaries of the region of existence of the ω -phase in the titanium-niobium alloys at room temperature.

A schematic is presented of the region of stability of the ω -phase in P-C-coordinates at 300° K. The P-C-plane is divided into three regions: region I where there are structures corresponding to the initial state of the alloys after quenching and where the application of pressure still does not lead to the occurrence of the ω -phase; region II where the ω -phase exists combined with the initial phases and region III where one ω -phase is stable.

2/2

USSR

UDC 669.715:539.4.016.3

AFIZOV, E. A., ZOLOTOREVSKIY, YU. S., KURYASHKIN, L. V., RUDOMETOV, V. S.

"Some Problems of Applying Technological Heating when Manufacturing Structural Elements from High-Strength Aluminum Alloys"

V sb. Metallovedeniye (Physical Metallurgy -- collection of works), No 15, Leningrad, Sudostroyeniye Press, 1971, pp 137-148 (from RZh-Metallurgiya, No 4, Apr 72, Abstract No 4I646)

Translation: Experimental data are presented which characterize the effect of the temperature and duration of heating on the strength and plastic properties of the metal of structural elements made of Al-alloys. It is demonstrated that the application of technological heating can promote a significant increase in the operating qualities of the structural elements. When designing structural elements and developing the process of manufacturing them it is necessary to increase the possible variation of the mechanical properties of the alloys as a result of heating. 4 illustrations, 1 table, and a 12-entry bibliography.

1/1

USSR

UDC 629.78:533.1

CHEKALIN, E. K., SHUMANOV, V. S., AFINOGENOV, YE. P.

"Interaction of an Ionized Metal Vapor Flow with a Body at $M > 1$ "

V sb. Teplofiz. svoystva i gazodinamika vysokotemperatur. ored. (Thermophysical Properties and Gas Dynamics of High-Temperature Media--collection of works), Moscow, Nauka, 1972, pp 96-106 (from RZh-Raketostroyeniye, otdel'nyy vypusk, No 12, Dec 72, Abstract No 12.41.122)

Translation: The experimental results of studies of sonic and supersonic flows of ionized copper and lithium vapors are discussed. A description was given of contact methods of measuring the flow parameters. The flow velocity, the Mach number, the temperature, the density and pressure of an erosion plasma flux which was formed during electric explosion of a wire and electrode erosion were determined by means of two planar oriented calorimeters, a ballistic pendulum, supersonic photography and measurement of the emf induced in the magnetic field. The results of the studies were checked by other methods, for example, by the Stark broadening of the H_α hydrogen spectral line. There are 5 illustrations, 1 table and a 15-entry bibliography.

1/1

Lasers and Masers

USSR

UX 7-1, 20, 65

KHINIKHUS, KH.V., AFIMOLIKOV, V.N.

"Depolarization of Laser Radiation in Optical Channel"

Izv. VUZ:Radioelektronika, Vol. XV, No. 12, Dec 1972, pp. 2144-2145

Abstract: The problem is considered of the effect of atmospheric conditions on the polarization in an open optical communication line which consists of a transmitting antenna with a directive mirror, the atmosphere, and a planar receiving antenna. An experimental investigation of the effects of depolarization was conducted on an optical communication line 5.2 km long. A He-Ne laser operating at a 633 micron wavelength was used as the laser. A FPD-61 phototube served as the receiving element in the photoreceiver. Depolarization was measured at various elements of the optical communication line. Depolarization of the output emission of the laser amounted to 10-15%. It is shown that depolarization of the optical signal depends on the distribution of intensity in the laser emission with reference to the cross and directional diameters of the antennas. (Fig. 5 and 6 and 7) (Category: Physics, January 1974).

1/1

USSR

UDC 624.072.211.23

AFENDUL'YEV, A. A., SHIVANOV, V. V.

A

"Calculation of Beams on an Elastic Footing with Unilateral Beam-Footing Contact, Allowing for Frictional Forces on Contact Surfaces"

[Tr.] Gor'kovsk. inzh.-stroit. in-ta (Transactions of the Gor'kiy Construction Engineering Institute), 1969, Vyp. 54, pp 9-16 (from RZh-Mekhanika, No 3, March 1970, Abstract No 3V709)

Translation: The problem posed in the article title is solved numerically by the finite differences method. Nonlinearities arising due to parting of the beam from its footing are taken into account. The solution of the resulting system of algebraic equations in terms of unknown ordinates of bendings and additional parameters dependent on the sign of the bending of the corresponding angle is undertaken by the trial and error method. For a rectangular cross-section beam freely supported on an elastic footing, results of calculations for loading by a concentrated force applied midspan are presented. These results take into account both the cases of frictional forces present and absent. It is noted that the effect of frictional forces on the deformations and nature of distribution of internal forces is small. V. M. Kulakov

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2/2 011

UNCLASSIFIED

PROCESSING DATE--11SEP70

CIRC ACCESSION NO--AP0103973

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. SATISFACTORY RESULTS WERE OBTAINED WITH AN ELECTROLYTE MADE OF HNO SUB3 (1.341) 25 AND GLYCEROL (1.225) 75PERCENT. THE POLARIZATION CURVE IN THIS ELECTROLYTE WAS VERY SIMILAR TO THAT IN H SUB3 PD SUB4. THE RELATION BETWEEN THE LOG OF THE RATIO OF THE VISCOSITY OF THE ELECTROLYTE WITH CU TO THE VISCOSITY OF THE PURE ELECTROLYTE AND THE LOG OF THE RATIO OF THE LIMITING CURRENT IN PURE ELECTROLYTE AND THE ELECTROLYTE WITH CU TO THE CU CONTENT IN SOLN. CONFIRMS THE ASSUMPTION ABOUT THE COMPENSATING EFFECT OF LOWERING THE DIFFUSION COEFF. BY CONCN. ON THE GROWTH OF ITS GRADIENT NEAR THE ELECTRODE SURFACE.

UNCLASSIFIED

1/2 011 UNCLASSIFIED PROCESSING DATE--11SEP70
TITLE--MODEL OF A VISCOUS ELECTROLYTE FOR THE ELECTRO POLISHING OF COPPER
-U-
AUTHOR--AFENDIK, K.F., KRICHMAR, S.I. A
COUNTRY OF INFO--USSR
SOURCE--ELEKTROKHIMIYA 1970, 6(1), 132-3
DATE PUBLISHED-----70

SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--ELECTROLYTE, COPPER, ELECTROLYTIC METAL POLISHING

CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1987/0318 STEP NO--UR/0364/70/005/001/0132/0133
CIRC ACCESSION NO--AP0103973
UNCLASSIFIED

USSR

UDC 621.372.6.01:621.372.6.01

APENDIK, A. I.

"An Installation for Automatically Checking the Value of the Resistors on Printed Circuit Boards in LPIT-47/59 Television Sets"

V sb. Opytom v radiopromyshlennosti (Experience Pooling in the Electronics Industry--collection of works), Vyp. 6, Moscow, 1970, pp 40-41 (from Radio Engng. Electron. Phys., No 10, Oct 70, Abstract No 10V316)

Translation: The author outlines the operating principle of an installation for automatically checking the values of resistors on the printed circuit boards in TV sets. The basic technical characteristics of the device are given. The block diagrams and structural singularities of the unit are described.

Acc. Nr:

AP0044698

A

Ref. Code:

UR 0497

PRIMARY SOURCE: Klinicheskaya Meditsina, 1970, Vol 48,
Nr 2, pp 25-29

RADIOISOTOPE SCANNING OF THE LUNGS

V. S. Afanas'yeva, T. A. Finikova, A. N. Zbants, Yu. V. Balabanov,
T. A. Chernyakova

Summary

Scanning opens up new vistas in the diagnosis of circulatory disturbances in diseases of the lungs. The report is based on an analysis of investigations carried out in 109 patients suffering from different diseases of the lungs (embolism of the pulmonary artery, pulmonary tuberculosis, malignant tumors). After roentgen-tomographic investigation scanning of the lungs was performed 5-10 minutes after intravenous introduction of 200-300 μ C of radioiodine-labelled macroaggregate albumin. The scintigrams reflected the degree of vascularization of the pulmonary tissue and enabled to establish the volume of disturbances by the presence of «silent» zones and reduction of the radioactivity. The technique is simple and safe for the patients.

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REEL/FRAME
19771433

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Acc. No. **045004**Abstracting Service: **5/70**
INTERNAT. AEROSPACE ABST.

Ref. Code:

UR0109

A70-22413 # Photomultiplier TWT with a louvered secondary electron multiplier operating in the 600- to 900-MHz range (FEU-LBV s zhaliuznym vtorichno-elektronnym umnozhitel'm, rabotaiushchaia v diapazone 600-900 Mgts). V. A.

Afanas'ev, V. G. Zubov, N. I. Ekamasov, A. V. Ievskii, and N. G. Lozovaia. *Radiotekhnika i Elektronika*, vol. 15, Jan. 1970, p.

155-161, 13 refs. In Russian.

Description of the design and parameters of a high-sensitivity photomultiplier TWT microwave photodetector with an internal louvered secondary-electron multiplier and a spiral high-frequency getter. The device is capable of detecting light modulated at frequencies ranging from 600 to 900 MHz. The photocathode sensitivity in experimental specimens at a wavelength of 0.63 micron amounted to 10 to 20 microamp/mW, the multiplication per stage is about 3 to 4, and the equivalent output resistance is about 10 to 100 kilohms. A photomultiplier TWT with two or three multiplication stages is tens of times more sensitive than photo-TWT models of the same design but without a multiplier system. With its aid it is possible to receive light signals with a power of about 1 microwatt at a wavelength of 0.63 micron in a band of several tens of megahertz.

A.B.K.

MT

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REEL/FRAME
19771900

2/2 026 UNCLASSIFIED PROCESSING DATE--27NOV70
 CIRC ACCESSION NO--AT0128922
 ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. KINETIC CURVES WERE SHOWN FOR THE
 P COMPS. IN CULTURES OF NEUROSPORA CRASSA AT 0-4DEGREES.
 ORTHOPHOSPHATE ROSE STEADILY WITH TIME IN THE CULTURE, FOLLOWING A SHORT
 INDUCTION PERIOD, WHILE ACID SOL. POLYPHOSPHATES DECLINED IN A MIRROR
 IMAGE CURVE. ACID INSOL. POLYPHOSPHATES DECLINED SLIGHTLY ONLY NEAR THE
 END OF THE EXPTL. PERIOD OF 2 HR. SUGAR PHOSPHATES AND PHOSPHOLIPIDS
 WERE UNCHANGED. IN A SIMILAR EXAMN. OF N. MAGNUSII, ORTHOPHOSPHATE
 SHOWED A MODERATE DECLINE INITIALLY, FOLLOWED BY A RAPID INCREASE AS
 ABOVE, WHILE ACID SOL. POLYPHOSPHATES GAVE A MIRROR IMAGE CURVE. SALT
 SOL. POLYPHOSPHATES DECLINED TO A STEADY LEVEL AFTER APPROX. 40 MIN,
 WHILE POLYPHOSPHATES EXT'D. WITH HClO SUB4 OR ALKALI DECLINED STEADILY
 AND RAPIDLY WITH TIME. WITHIN 40-60 SEC OF DESTRUCTION OF N. CRASSA
 CELLS AT 0-2DEGREES THE MOST POLYMD. ACID INSOL. POLYPHOSPHATES DECLINED
 SHARPLY WHILE THE ACID SOL. FRACTION INCREASED IN A MIRROR IMAGE MANNER.
 EVIDENTLY WHEN THE CELLS ARE DESTROYED, THE DEPOLYMG. POLYPHOSPHATASES
 BEGIN TO FUNCTION ACTIVELY AND FRAGMENT THE LARGER POLYPHOSPHATES TO
 ACID SOL., SMALLER UNITS AND BYPASS THE SALT SOL. FRACTION STAGE.
 FACILITY: MOSK. GDS. UNIV. IM. LOMONOSOVA, MOSCOW, USSR.

UNCLASSIFIED

1/2 026 UNCLASSIFIED PROCESSING DATE--27NOV70
TITLE--LOCALIZATION AND STATES OF POLYPHOSPHATES AND POLYPHOSPHATASES IN
FUNGAL CELLS -U-
AUTHOR-(03)-KULAYEV, I.S., KRASHENINNIKOV, I.A., AFANASYEVA, T.P.
COUNTRY OF INFO--USSR
SOURCE--DOKL. AKAD. NAUK SSSR 1970, 190(5), 1238-40
DATE PUBLISHED-----70
SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES
TOPIC TAGS--FUNGUS, PHOSPHATE, ENZYME ACTIVITY, METABOLISM, CELL
PHYSIOLOGY
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3002/1527 STEP NO--UR/0020/70/190/005/1238/1240
CIRC ACCESSION NO--AT0128922
UNCLASSIFIED

USSR

AFANAS'YEVA, R. F., Gigivena i Sanitariya, No 7, 1971, pp 38-43

$$C = \frac{(0.865.200 - q - 0.55) e - 0.009 (T - S),}{1330 - 7.775}$$

where C is the coefficient of "mixing" of the body temperature (1 - C is the coefficient of "mixing of skin temperature), q is the density of heat flow, e is the base of the natural logarithm, T is the time of exposure to cold, and S is the body surface.

USSR

UDC 612.592-087.86

APANAS'YEVA, R. F., Candidate of Medical Sciences; ORUNEVA, S. G.,
~~Central Scientific~~ Research Institute of the Sewing Industry

"Determination of the Heat Deficit of the Human Body During
Cooling"

Moscow, Gigiyena i Sanitariya, No 7, 1971, pp 38-43

Abstract: Four nude male subjects seated in a microclimatic chamber were exposed to temperatures of $+10^{\circ}$, 0° , and -10°C with the body and skin temperatures (at 10 different places) measured every five min. In the course of cooling, the ratios of body and skin temperatures were found to change, the former increasing, the latter decreasing. The changes in coefficients of "mixing" of these values were exponential. The absolute values of coefficients of "mixing" of skin and body temperatures varied with the intensity of cold and the individual thermoregulatory reactions. The following equation can be used to determine the coefficients of "mixing" at any time of exposure to cold at a given rate of cooling:

1/2

USSR

UDC 595.775

ZOLOTOVA, S. I., and AFANASYEVA, O. V., Central Asian Scientific Research
Antiplague Institute, Alma-Ata

"Biology of the Gerbil Flea *Ctenophthalmus dolichus* Ioff, 1953"

Leningrad, Parazitologiya, Vol 5, Vyp No 4, Jul/Aug 71, pp 364-368

Abstract: The effect of relative humidity and temperature on the development of *Ctenophthalmus dolichus* was studied. This flea infests the great gerbil during the cold season. It was found that the entire life cycle of the flea takes place at a temperature from 8 to 26°C and relative humidity from 89 to 100%. The optimum conditions for development were found to be a temperature of 25-26°C and relative humidity of 95 to 100%, conditions at which 19.2 to 36.7% of the eggs hatched. The relatively small number of individuals completing the life cycle indicates that this flea species is of low viability. The temperature has a pronounced effect on the development of the pre-imaginal phases. The development period of the fleas is reduced from 338 to 22 days as the environmental temperature increases from 8 to 26°C.

USSR

AFANAS'YEVA, N. P., et al, Razvitiye yadern. i izotopn. priborostr. Tr. Konferentsii spetsialistov stran-chlenov SEV, 1969. Ch. 1, Moscow, 1970,
pp 199-206

of fluctuations in the process of charge accumulation increases with an increase in the heterogeneity of the specific resistance and also with time if the detectors are kept at room temperature without reverse grid bias. Satisfactory agreement was observed between the measured value of the noise and the calculated level of shot noise produced by the flow of current caused by volume or surface regeneration of pairs (i.e., for the case in which surface conductivity can be neglected). The magnitude of the contribution of excess noises to the energy resolution is linearly dependent on the leakage current (slope 20 kev/ μ a). It is hypothesized that leakage currents arise as a result of "decompensation" of the material (for example, close to the surface). In studying the effect of the material parameters on intermediate stages in making the detectors, it was observed that the leakage current of a diffusion pn-junction increases with an increase in dislocation density.

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USSR

UDC 53.07/.08+53.001.5

AFANAS'YEVA, N. P., NOVIKOV, S. R., STROKAN, N. B., TISNEK, N. I.

"On the Resolving Power of Silicon Lithium-Drift Detectors"

V sb. Razvitiye yadern. i izotopn. priborostr. Tr. Konferentsii spetsialistov stran-chlenov SEV, 1969. Ch. 1 (Development of Nuclear and Isotope Instrument Building. Works of the Conference on Specialists of Member Countries of the Council for Mutual Economic Aid, 1969. Part 1 -- Collection of Works), Moscow, 1970, pp 199-206 (from RZh-Fizika, No 1, Jan 71, Abstract No 1A694)

Translation: The effect of specific resistance, the lifetime of nonbasic current carriers, and the dislocation density of p-type silicon on the energy resolution of detectors made by the lithium-drift method was investigated. It is shown that in detectors with good compensation by lithium the energy resolution is determined by the average magnitude and spread of the lifetime over the area of the Si plate. In the case of insufficiently good compensation, fluctuations in the process of charge accumulation and, consequently, the energy resolution will also depend on fluctuations in the electric field. It was observed that the magnitude

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OC9

UNCLASSIFIED

PROCESSING DATE--11DEC70

CIRC ACCESSION NO--AP0135761

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE SIMULTANEOUS USE OF STARCH AND POLYOXYETHYLENATED COMPOS. LEADS TO FORMATION OF A COMPLEX ABSORPTION STRUCTURE ON THE BORDER OF PHASE SEPH. AND AFFECTS THE RATE OF FLOTATION OF APATITE, CALCITE, AND DOLOMITE WITH CARBOXYLIC ACIDS. THESE COMPLEX PROPERTIES CAN BE USED DURING THE SELECTIVE FLOTATION OF APATITE.

FACILITY: GORN. MET. INST., APATITY, USSR.

UNCLASSIFIED

1/2 009 UNCLASSIFIED PROCESSING DATE--11 DEC 70
TITLE--SELECTIVE FLOTATION OF PHOSPHATE CARBONATE ORES -U-
AUTHOR--(U2)-ALEYNIKOV, I.A., AFANASYEVA, N.V. A
COUNTRY OF INFO--USSR
SOURCE--FIZ. TEKH. PROBL. RAZRAB. POLEZ. ISKOP. 1970, (2), 91-5
DATE PUBLISHED-----70
SUBJECT AREAS--EARTH SCIENCES AND OCEANOGRAPHY, MATERIALS
TOPIC TAGS--CARBOXYLIC ACID, ABSORPTION, PHOSPHATE, CARBONATE, FLOTATION
REAGENT
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--3007/0C64 STEP NO--UR/0415/70/000/002/0091/0095
CIRC ACCESSION NO--AP0135761
UNCLASSIFIED

c. Nr. **AP0029111**

Ref. Code: UR 0477

PRIMARY SOURCE: Zdravookhraneniye Belorussii, 1970, Vol 16, Nr 1,
pp 79-80

USE OF BLOOD TRANSFUSION IN OTOGENOUS INTRACRANIAL
COMPLICATIONS

N. G. Ajanasyeva

SUMMARY

The article says that in the complex of all enterprises in treating intracranial complications of the suppurative otites with a positive result, a one-group blood transfusion as factor intensifying the organism immunobiological properties is applied.

MB

REEL/FAME

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2/2 025

UNCLASSIFIED

PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0124044

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DESCRIPTION OF AN APPROXIMATE METHOD FOR DETERMINING THE STABILITY CHARACTERISTICS OF ELASTIC BODIES OF REVOLUTION IN A TEMPERATURE FIELD UNDER COMPRESSION. THE RITZ METHOD IS USED TO REDUCE A VARIATIONAL EQUATION OF BENDING TO A SYSTEM OF SECOND POWER ALGEBRAIC EQUATIONS DESCRIBING THE BENDING OF SHELLS WITH VARIOUS CURVATURES SUBJECTED TO UNIFORM AND NONUNIFORM HEATING ALONG THE RADII. THE TEMPERATURE DEPENDENCE OF THE ELASTIC MODULUS AND THE CONVERGENCE OF SOLUTIONS VS THE NUMBER OF RITZ PARAMETERS ARE INVESTIGATED FOR SHELLS OF REVOLUTION WITH RIGIDLY AND SLIDE CLAMPED EDGES.

UNCLASSIFIED

1/2 025 UNCLASSIFIED PROCESSING DATE--20NOV70
TITLE--STABILITY OF FLEXIBLE PRESSURE LOADED SHALLOW SHELLS OF REVOLUTION
IN A TEMPERATURE FIELD -U-
AUTHOR--AFANASYEVA, L.M.

COUNTRY OF INFO--USSR

SOURCE--AKADEMIYA NAUK SSSR, IZVESTIYA, MEKHANIKA TVERDOGO TELA, MAR.-APR.
1970, P. 191-194
DATE PUBLISHED-----70

SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--SHELL STRUCTURE STABILITY, BIBLIOGRAPHY, ELASTICITY, METAL
COMPRESSIBILITY, SHELL OF REVOLUTION, BODY OF REVOLUTION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--2000/0285

STEP NO--UR/0484/70/000/000/0191/0194

CIRC ACCESSION NO--AP0124044

UNCLASSIFIED

2/2 016

UNCLASSIFIED

PROCESSING DATE--ZONOV70

CIRC ACCESSION NO--AP0132207

ABSTRACT/EXTRACT--(U) CP-C- ABSTRACT. ZN ELECTRODES PREPD. BY DEPOSITION FROM ZINCATE SOLNS. ONTO A POROUS CU SUBSTRATE HAVING A D. OF 1-3 G-CM. PRIMES WERE DISCHARGED BETWEEN 2 AGG COUNTER ELECTRODES IN 10N KOH (VOL. EQUALS 2 ML-G ACTIVE ZN). ELECTRODES HAVING A TRUE SURFACE AREA OF 8.5 M PRIME2-G HAD A POROSITY P EQUALS 70PERCENT; ELECTRODES WITH AN AREA EQUALS 0.4 M PRIME2-G HAD P EQUALS 30PERCENT. OPTIMUM ELECTROCHEM. CHARACTERISTICS (DURATION OF DISCHARGE AT CONST. VOLTAGE) OCCURRED FOR ELECTRODES WHOSE P EQUALS 50-65PERCENT; THESE ELECTRODES HAD D. 1.2-1.8 G-CM PRIME2. AT 30 A-DM PRIME2 AND 25DEGREES, THESE ELECTRODES HAD A UTILIZATION COEFF. OF 75PERCENT, WHEREAS ELECTRODES HAVING P EQUALS 30PERCENT, THE UTILIZATION WAS ONLY 20PERCENT. INCREASING THE DISCHARGE TEMP. INCREASED THE UTILIZATION.

UNCLASSIFIED

1/2 016 UNCLASSIFIED PROCESSING DATE--20NOV70
TITLE--EFFECT OF THE POROUS STRUCTURE OF A ZINC ELECTRODE ON ITS
ELECTRICAL CHARACTERISTICS -U-
AUTHOR-(C3)-RESHETOVA, G.N., AFANASYEVA, L.A., ARKHANGELSKAYA, Z.P.
COUNTRY OF INFO--USSR
SOURCE--ZH. PRIKL. KHIM. (LENINGRAD) 1970, 43(4), 843-7
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY, PHYSICS
TOPIC TAGS--POROSITY, ZINC, METAL ELECTRODE, ELECTRIC PROPERTY, SURFACE
AREA
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3004/1946 STEP NO--UR/0080/70/043/004/0843/0847
CIRC ACCESSION NO--AP0132207
UNCLASSIFIED

Acc. Nr.

AP0049920

Abstracting Service:
CHEMICAL ABST. 570

Ref. Code:

A 4R0070

104827c Elastic constants of the anthracene crystal as a function of temperature. Afanas'eva, G. K.; Myasnikova, R. M. (Inst. Elementoorg. Spedim., Moscow, USSR). *Kristallografiya* 1970, 15(1), 189-90 (Russ). Elastic consts. of monoclinic single crystals of anthracene were detd. by a method described earlier (CA 68: 33930k) for the temps. 100, 140, 180, 220, 260, and 300°K. For these temps. the elastic wave velocities V , and elastic constants c_{ij} are given. V increases with increasing temp. in a slightly distorted parabolic fashion. The av. value $\partial \ln c_{ij} / \partial T$ was, on the av., 2-times lower than that for naphthalene crystals.

K. Volka

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REEL/FRAME
198018567
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USSR

UDC: 621.373.531.3(088.8)

AFANAS'YEV, Yu. V., PONOMAREV, Yu. F., AMEL'KIN, A. M., Special Design
Office of the Ministry of Geology of the USSR

"A Device for Shaping Square Pulses of Alternating Sign"

USSR Author's Certificate No 265183, filed 8 Jul 68, published 12 Jun 70
(from RZh-Radiotekhnika, No 12, Dec 70, Abstract No 120252 P)

Translation: This Author's Certificate introduces a device for shaping square pulses of alternate sign. The unit contains a sinusoidal or back-to-back sawtooth voltage generator connected through a transformer to the bases of transistor cells of the switching type which are connected in series with the power supply and a potentiometer. The unit also contains a load connected to the tie-point between two capacitors which are connected in parallel with the supply and to the slide wire of the potentiometer. To change the duty factor of the output pulses while simultaneously minimizing the klirr factor with respect to even harmonics, a parallel RC network which contains a variable resistor is connected between centertap of the secondary winding of the transformer and the capacitors of the transistor cells.

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USSR

UDC 621.317.4

AFANAS'YEV, Yu. V., STUDENTSOV, N. V., and Shchel'KIN, A. P.

"Magnetometric Converters, Instruments, and Assemblies"

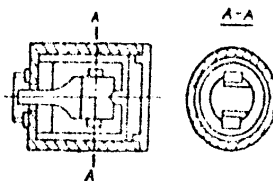
Magnitometricheskiye Preobrazovateli Pribory, Ustanovki (cf. English above), Leningrad, Energiya, 1972, 272 pp, illustrated, 1 ruble 18 kopecks (from RZh-Avtomatika Telemechanika i Vychislitel'naya Tekhnika, No 3, Mar 73, Abstract No. 3 A295K by the authors)

Translation: The book is devoted to the theory and practice of modern means of measuring magnetic induction. The principles of operation, basic parameters, and characteristics of magnetometric converters of various types are examined. A description is given of the circuits and design of instruments using these converters. Attention is given to minimizing the distortions of converters and instruments, and a method and apparatus are described for determining the individual distortions of the instruments.

USSR

AFANS'YEV, Yu. V. et al., USSR Author's Certificate No 335629

opposite sides of the lateral surface of the concentrator, which is made in the shape of a truncated cone and is excited on the resonance frequency of torsional vibrations of the transducers.



USSR

UDC: 621.317.44

ARANAS'YEV, Yu. V., GRINBAUM, M. B., PERSIYANOV, T. V., PISHCHER, I. V.,
REKALOVA, G. I., SHAKHOV, A. A., Leningrad Electrical Engineering Institute
imeni V. I. Ul'yanov (Lenin)

"A Device for Measuring Magnetic Fields"

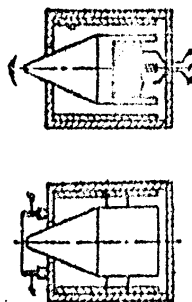
Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki,
No 13, May 72, Author's Certificate No 335629, Division G, filed 10 Nov 70,
published 11 Apr 72, p 190

Translation: This Author's Certificate introduces a device for measuring magnetic fields. The device contains an acoustic concentrator coupled to an electromechanical transducer such as a piezoelectric converter, needle holders mounted on an acoustic neutral, and a microwire which acts as part of the measurement loop and is fastened in supports and put into oscillatory motion by the transducer. As a distinguishing feature of the patent, provision is made for measuring the induction of the magnetic field inside the cavities of magnetized articles. For this purpose the device is equipped with a second electromechanical transducer of longitudinal oscillations connected in phase with the first. The transducers are securely fastened on

USSR

AFANAS'YEV, Yu. V. et al., USSR Author's Certificate No 335628

are securely fastened to the concentrator base which is made in the form of a wedge. The converters are arranged symmetrically with the geometric axis of the wedge, which is excited on the resonance frequency of flexural vibrations of the converters.



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USSR

UDC: 621.317.44

AFANAS'YEV, Yu. V., GRINBAUM, M. B., PERSIYANOV, T. V., PISHCHER, I. V.,
REKALOVA, G. I., SHAKHOV, A. A., Leningrad Electrical Engineering Institute imeni V. I. Ul'yanov (Lenin)

"A Device for Measuring Magnetic Fields"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztzy, Tovarnyye Znaki, No 13, May 72, Author's Certificate No 335628, Division G, filed 10 Nov 70, published 11 Apr 72, pp 189-190

Translation: This Author's Certificate introduces a device for measuring magnetic fields. The device contains an acoustic concentrator coupled to a hollow conducting half-wave cup holding an electromechanical converter such as a piezoelectric converter, needle holders mounted on an acoustic neutral, and a microwire which acts as part of the measurement loop. The microwire is fastened in supports and is put into oscillatory motion by the concentrator mentioned above. As a distinguishing feature of the patent, in order to measure the normal component of the field on the surface of magnetized bodies, the device is equipped with a second electromechanical converter connected in antiphase with the first. The converters

USSR

UDC 621.317.444:620.179.143

AFANAS'YEV, Yu. V., and AKADINSKAYA, L. G.

"High-Frequency Film Ferroprobes and Prospects for Their Use"

Moscow, Tr. metrol. in-tov SSSR. VNIi metrol. (Transactions of the Metrological Institutes SSSR, All-Union Scientific Research Institute of Metrology), No 140(200), 1972, pp 92-98 (from Referativnyy Zhurnal -- Metrologiya i Izmeritel'naya Tekhnika, No 1, 1973, Abstract No 1.32.1267)

Translation: The expediency of projecting high-frequency ferroprobes on a base of tubular cores, used as ferromagnetic covering with a thickness of 5-10 micron, deposited on the foundation by electrodeposition, is well founded. In such ferroprobes two methods of core activation are used -- transverse and longitudinal. The transmission of the working (carying) frequencies in the area of 100 khertz makes it possible to miniaturize the electronic part of the magnetometers, and also to expand their informational potentialities by means of constant and variable fields down to ten kilohertz. (5 illustrations, 1 table, 8 bibliographic entries)

USSR

KILADZE, N. SH., et al, Trudy Instituta Sistem Upravleniya AN GruzSSR, No 2, 1970, pp 5-11

radiating surface is 0.5 mm^2 , the average wave length of the measurement is 6800 \AA , the width of the spectrum band is 70 \AA .
2 illustrations, 2 bibliographic entries.

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USSR

UDC 536.521.082.52

KILADZE, N. SH., SITNIKOV, E. K., AFANAS'YEV, YU. S.

"A Sensitive Photoelectric Brightness Pyrometer"

Trudy Instituta Sistem Upravleniya AN GruzSSR (Works of the
Institute of Control Systems, Academy of Sciences, Gruzinskaya
SSR), No 2, 1970, pp 5-11 (from Referativnyy Zhurnal, Metrologiya
i Izmeritel'naya Tekhnika, No 12, 1970, Abstract No 1232.607
by V. S. K.)

Translation: In the article are presented the method of calculation, a description of the operating principle, and a description of the arrangement of a photoelectric pyrometer for measuring the temperature of bodies of small area, developed at the Institute of Electronics, Automation, and Remote Control of the Academy of Sciences, Gruzinskaya SSR. The operation of the pyrometer is based upon a comparison of the radiation of the surface, the temperature of which is being measured, with the radiation of a standard lamp that has been graduated by standard pyrometer. The range of measured temperatures is from 1000 to 2000°C, the measurement exactness is to within $\pm 1\%$, the minimum area of

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2/2 021 UNCLASSIFIED PROCESSING DATE--30OCT70
CIRC ACCESSION NO--AP0119638
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE UNPAIRED ELECTRON OF F SUB2
C(NO SUB2 SUB2 TIMES NEGATIVE PRIME (CA 69 IS TO 821880) WAS DELOCALIZED
OVER THE WHOLE MOL. IN ANALOGS OF I IN WHICH THE CF SUB2 AND NO SUB2
MOIETIES ARE SEPD. BY AN AROMATIC RING THE UNPAIRED ELECTRON IS
LOCALIZED IN NITRO AROMATIC MOIETY ONLY. DATA OF POLAROGRAPHIC AND EPR
ANALS. FOR THE ANION RADICALS OF F SUB2 C(C SUB6 H SUB4 NO SUB2-P) SUB2,
PHCF SUB2 C SUB6 H SUB4 NEGATIVE NO SUB2-P, AND HCF SUB2 C SUB6 H SUB4
NO SUB2-P ARE DISCUSSED. FACILITY: MOSK. INST. TONKOI KHIM.
TEKHNOL. IM. LOMONOSOVA, MOSCOW, USSR.

UNCLASSIFIED

1/2 021 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--ANION RADICALS OF NITROAROMATIC COMPOUNDS CONTAINING A
DIFLUOROMETHYLENE GROUP -U-
AUTHOR-(04)-POLENOV, YE.A., KAZAKOVA, V.M., AFANASYEV, YU.N., SYRKIN,
YA.K.
COUNTRY OF INFO--USSR
SOURCE--ZH. STRUKT. KHIM. 1970, 11,1, 142-5
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--FREE RADICAL, ORGANIC NITRO COMPOUND, FLUORINATED ORGANIC
COMPOUND, METHYLENE
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1997/0731 STEP NO--UR/0192/70/011/001/0142/0145
CIRC ACCESSION NO--AP0119638
UNCLASSIFIED

USSR

UDC 621.315.592:669.762-416

SHACHNEV, V. I., AFANAS'YEVICH, V. F., USKOV, A. G., SHUTIKOV, V. P.

"Thermodynamics of the Process of Obtaining Autoepitaxial Layers of Silicon by Pyrolysis of Silane"

Elektron. tekhnika. Nauchno-tekhn. sb. Materialy (Electronic Engineering. Scientific and Technical Collection. Materials), 1970, vyp. 5, p 139 (from RZh-Metallurgiya, No 4, Apr 71, Abstract No 4G466)

Translation: The equilibrium constants of the decomposition reactions of monosilane and hydrides of the alloying elements of the third and fifth groups (diborane, phosphine, and arsine) are calculated. For the standard conditions of the process of epitaxial growth of Si (the ratio in the initial gas mixture $\text{SiH}_4(\text{gas}) : \text{H}_2(\text{gas}) = 1 : 10^3$ and $\text{BH}_3(\text{B}_2\text{H}_6(\text{gas}) : \text{SiH}_4(\text{gas}) = 10^3 - 10^5)$, the relative transition coefficients of the alloying admixtures are calculated ($\eta_e = \mu_e / \mu_{\text{Si}}$, where μ_e and μ_{Si} are the yields of the alloying element and Si) in the temperature range of 800-1,600° K. For all the investigated alloying elements (B, P, and As) the relative transition coefficient is constant and equal to one under the indicated conditions.

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A Instruments and Measurements

USSR

UDC 621.396.009

AFANAS'YEV, YU. A., DOROFYEV, V. M.

"Threshold Noise Suppression Device"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsov, Tovarnyye Znaki,
No 16, 8 May 70, p 38, Patent No 270006, Filed 19 Aug 68

Translation: This Author's Certificate introduces a device for suppression of threshold noise containing a frequency detector, the input of which is connected in parallel to the amplitude detector and a paraphase limiter-amplifier connected to its output. In order to increase the noiseproofness, a diode bridge is connected to the output of the frequency detector. The diagonal of the diode bridge with one-way conductance is connected to the output of the paraphase amplifier-limiter, and the output of the diode bridge is connected to the input of the storage element.

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2/2 017

UNCLASSIFIED

PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0118858

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. VALIDITY OF THE EQUATION
 $(\Delta H^\circ_{\text{SUBF}})_{\text{II}} = A(\Delta H^\circ_{\text{SUBF}})_{\text{SUBI}} + B$, WHERE A
 AND B ARE CONSTS. AND $\Delta H^\circ_{\text{SUBF}}(\text{SUBU})$ AND $\Delta H^\circ_{\text{SUBF}}(\text{SUBI})$ ARE STD. ENTHALPIES OF FORMATION OF LANTHANIDES (LN) AND
 ACTINIDES (AN) WAS ESTABLISHED FOR THE PAIRS LN $\Delta H^\circ_{\text{SUB3}}(S)$ MINUS AN $\Delta H^\circ_{\text{SUB4}}(S)$, LN $\Delta H^\circ_{\text{SUB3}}(S)$ MINUS AN $\Delta H^\circ_{\text{SUB4}}(S)$, AND LN $\Delta H^\circ_{\text{SUB3}}(S)$ MINUS AN $\Delta H^\circ_{\text{SUB4}}(S)$. THIS FINDING SUPPORTS THE SEABORG THEORY.
 STRESSING THE SIMILARITY BETWEEN LANTHANIDES AND ACTINIDES.
 FACILITY: INST. NEORG. KHIM., NOVOSIBIRSK, USSR.

UNCLASSIFIED

1/2 017 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--ACTINIDE THEORY IN CONNECTION WITH METHODS FOR THE COMPARATIVE
CALCULATION OF THERMOCHEMICAL PROPERTIES -U-
AUTHOR--~~AFANASYEV~~, YU.A. A
COUNTRY OF INFO--USSR
SOURCE--ZH. FIZ. KHIM. 1970, 44(3), 808-10
DATE PUBLISHED-----70
SUBJECT AREAS--CHEMISTRY
TOPIC TAGS--THERMOMECHANICAL PROPERTY, ACTINIDE SERIES
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1996/1896 STEP NO--UR/0076/70/044/003/0308/0810
CIRC ACCESSION NO--AP0118858
UNCLASSIFIED

USSR

NIKOLAYEV, A. V., et al., Radiokhimiya, Vol 12, No 2, 1970, pp 326-335

in concentration past 0.5 M, the nonmonotonicity is complicated by the observation that at 0.8 M the maximum in D exists not only for samarium, but also for holmium.

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Radiation Chemistry

USSR

UDC 541.123.6:546.741

NIKOLAYEV, A. V., RYABININ, A. I., and AFANAS'YEV, Yu. A.

"Extraction of Nitrates of Rare Earths, Thorium and Uranium, Using Undiluted Tributyl Phosphate"

Moscow, Radiokhimiya, Vol 12, No 2, 1970, pp 326-335

Abstract: Securing full information on quantitative functions of distribution coefficients (D) from concentrations of the extract, coextracts, and salting-out components requires plotting of the complete distribution diagram when studying an extraction system. Otherwise, a broad interval between experimental points can leave peculiarities of system behavior undetected. A table listing distribution coefficients of rare earth nitrates in the systems $\text{Ln}(\text{NO}_3)_3\text{-H}_2\text{O-(C}_4\text{H}_9\text{O)}_3\text{PO}$ at 25° showed that D as a function of concentration for all elements studied (Pr, Sm, Gd, and Lu) passes through a maximum in the 0.8-1.5 M concentration interval. Another table listed distribution coefficients of nitrates in the systems $\text{Me}(\text{NO}_3)_3\text{-HNO}_3\text{-H}_2\text{O-(C}_4\text{H}_9\text{O)}_3\text{PO}$ at 25° for the elements La, Pr, Sm, Gd, Ho, Lu, Ce(IV), and Th.² Tabled data showed that nonmonotonicity with the maximum of D for samarium is observed at nitrate concentrations ≤ 0.5 M. With an increase

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USSR

AFANAS'YEV, Yu. A., DOROFYEV, V. M., USSR Author's Certificate No. 270006

for the same time period. The memory unit retains a voltage equal to that of the signal at the instant preceding the jump. By "chopping" the pulses, the device reduces the power of threshold noises. A. K.

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USSR

UDC: {621.391.82-758.37[621.396.62:621.376.3]}(088.8)

AFANAS'YEV, Yu. A., DOROFYEV, V. M.

"A Device for Suppressing Threshold Noises"

USSR Author's Certificate No 270006, filed 19 Aug 68, published 13 Aug 70
(from RZh-Radiotekhnika, No 1, Jan 71, Abstract No 1A274 P)

Translation: The device covered by this patent is designed for reducing threshold noises in FM signal receivers which operate under conditions of strong jitter or periodic interference. Connected at the output of the frequency detector is a diode bridge with a memory unit; the diagonal of the bridge with unilateral conductivity is connected to the output of a transistorized paraphase amplifier-clipper. Receiver threshold noises are due to phase jumps at the input by 2π radians accompanied by an abrupt voltage drop at the input. In the absence of a phase jump, the drop in voltage across the input is slight, the transistor in the amplifier is blocked, the bridge is open. The signal voltage from the frequency detector is fed through the open diode bridge to the receiver output. When a 2π jump in phase occurs, the voltage drop across the output of the amplitude detector opens the transistor in the amplifier for the time when the jump is in effect. The pulse at the amplifier output closes the diode switch

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USSR

AFANAS'YEV, YU. A., et al., Zhurnal Fizicheskoy Khimii, Vol 44,
No 7, Jul 70, pp 1622-1624

selenates and double selenates in dilute aqueous solutions. The temperatures (T_d) of decomposition of the double selenates of the rare-earth metals were lower by approximately 100° than those of the analogous double sulfates. The values of H_s , H_f° , and T_d that were determined for the double selenates are listed in tables.

UDC 541.11:546.65

USSR

AFANAS'YEV, YU. A., KRAVCHENKO, L. KH., and BABINA, K. A., Institute of Inorganic Chemistry, Novosibirsk, Siberian Department Academy of Sciences USSR

"Thermochemistry of Anhydrous Double Selenates of Rare-Earth Elements of the Cerium Group and of Ammonium"

Moscow, Zhurnal Fizicheskoy Khimii, Vol 44, No 7, Jul 70, pp 1622-1624

Abstract: The heats of solution ΔH_s of the double selenates $M_2(SeO_4)_3 \cdot (NH_4)_2SeO_4$ ($M = La, Pr, Nd, Gd$) were determined. The standard enthalpies of formation ΔH_f° of these double salts in the anhydrous state were calculated from ΔH_s and the values of ΔH_f° for $M_2(SeO_4)_3$ and $(NH_4)_2SeO_4$ in dilute aqueous solutions, which were taken from the literature. By the method of comparative calculation, the values of ΔH_f° for the anhydrous salts $M_2(SeO_4)_3 \cdot (NH_4)_2SO_4$ ($M = Ce \text{ III}, Sm, Eu$) were also determined. In calculations for the double salts of Sm and Eu , the relation ΔH_f° (selenate) = $0.813 \Delta H_f^\circ$ (sulfate) - 58.6 was applied, while ΔH_f° for the anhydrous double $Ce \text{ III}$ selenate was determined on the basis of the linear relation between ΔH_f° values for the anhydrous double

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2/2 023

UNCLASSIFIED

PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AT0116582

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DISCUSSION OF A CLASS OF SELF SIMILAR DYNAMIC PROBLEMS IN TWO DIMENSIONAL ELASTICITY THEORY FOR A BOUNDLESS BODY CONTAINING A DIVERGENT RECTILINEAR CUT WHICH IS FREE OF LOADING AT ANY TIME. IT IS SHOWN THAT ONLY THREE SOLUTIONS ARE PHYSICALLY ACCEPTABLE: (1) A SOLUTION WITH A CONSTANT FINITE MOMENTUM (THE DISPLACEMENT POTENTIALS ARE HOMOGENEOUS FUNCTIONS OF THE COORDINATES AND ZERO TIME), (2) SOLUTION WITH CONSTANT ENERGY (THE DISPLACEMENTS ARE HOMOGENEOUS FUNCTIONS OF THE COORDINATES AND ZERO TIME), AND (3) A SOLUTION IN WHICH THE STRESSES ARE HOMOGENEOUS FUNCTIONS OF THE COORDINATES AND ZERO TIME. CLOSED FORM SOLUTIONS FOR THE FIRST TWO CASES ARE OBTAINED. IT IS SHOWN THAT WITH THE AID OF THE SMIRNOV-SOBOLEV (1931) METHOD, THE SOLUTIONS OBTAINED CAN BE REDUCED TO KELDYSH AND SEDOV'S BOUNDARY VALUE PROBLEM. FACILITY: MOSKOVSKII INSTITUT NEFTEKHIMICHESKOI I GAZOVOI PROMYSHLENNOSTI, MOSCOW, USSR.

UNCLASSIFIED

1/2 023 UNCLASSIFIED PROCESSING DATE--16OCT70
TITLE--SELF SIMILAR PROBLEM IN THE DYNAMIC THEORY OF ELASTICITY FOR A SLOT
CONTAINING A POINT SOURCE -U-
AUTHOR-(02)-AFANASYEV, YE.E., CHEREPANDV, G.P. *A*

COUNTRY OF INFO--USSR

SOURCE--AKADEMIIA NAUK SSSR, DOKLADY, VOL. 190, FEB. 21, 1970, P.
1296-1299
DATE PUBLISHED-----70

SUBJECT AREAS--PHYSICS, MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--ELASTICITY THEORY, BIBLIOGRAPHY, DYNAMIC SYSTEM, BOUNDARY
VALUE PROBLEM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1995/1116

STEP NO--UR/0020/70/190/000/1296/1299

CIRC ACCESSION NO--AT0116582

UNCLASSIFIED

USSR

UDC: 621.396.6-181.48

AFANAS'YEV, V. Ya., DOROKHOVA, L. B., PETROVA, V. Z.

"Investigation of the Possibility of Using Lo-Melting Glass for Insulation Between Layers in Thin-Film Microcircuits"

Sb. nauch. tr. po probl. mikroelektron. Mosk. in-t elektron. tekhn. (Collected Scientific Works on Problems of Microelectronics. Moscow Institute of Electronic Technology), 1972, vyp. 8, pp 102-108 (from RSh-Radiotekhnika, No 8, Aug 72, Abstract No 8V311)

Translation: The paper deals with the general requirements to be satisfied by silicate dielectrics for interlayer insulation. A study is made of low-melting glasses in the $\text{SiO}_2\text{-PbO-ZnO-B}_2\text{O}_3$ system. Films 5-10 μ thick were produced by sedimentation of glass powder on a pyroceramic substrate with microcircuit made by gold vaporization. The sedimentation was done from a glass suspension in ethyl acetate with centrifuging (2500-3000 rpm). The structure of the resultant films was studied by infrared spectroscopy. A study was also made of the moisture and heat resistance of the films and their electrical parameters. Three illustrations, bibliography of four titles. N. S.

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2/2 012

UNCLASSIFIED

PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AT0127798

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ALPHA DECAY OF PRIME211 RN AND PRIME212 RN WAS INVESTIGATED USING THE MAGNETIC SPECTROGRAPH. BESIDES THE KNOWN ALPHA TRANSITIONS OF PRIME211 RN (5850 KEV (1), 5783 KEV (1.84), 5616 KEV (0.08)) THERE WERE OBSERVED THE NEW ONES: 5466 KEV (2 TIMES 10 PRIME NEGATIVE4), 5276 KEV (4.4 TIMES 10 PRIME NEGATIVE4, 5179 KEV (8 TIMES 10 PRIME NEGATIVE5) 5055 KEV (2 TIMES 10 PRIME NEGATIVE5). THE HINDRANCE FACTORS ARE PRESENTED. NEW LEVELS: 391.4 KEV, 585 KEV, 684 KEV ARE INTRODUCED FOR THE PRIME207 PO NUCLEUS. FOR PRIME212 RN THE 5588 KEV (5 TIMES 10 PRIME NEGATIVE4) ALPHA TRANSITION TO THE 687 KEV LEVEL OF PRIME208 PO, WAS OBSERVED. THE PARTS OF ALPHA DECAY OF PRIME211 AT, PRIME211 RN AND PRIME207 PO (41.3 PLUS OR MINUS 1.3PERCENT AND 0.028 PLUS OR MINUS 0.003PERCENT) ARE ESTIMATED. FACILITY: JOINT INST. FOR NUCLEAR RESEARCH, DUBNA USSR.

UNCLASSIFIED

1/2 012 UNCLASSIFIED PROCESSING DATE--3000170
TITLE--ALPHA DECAY OF PRIME211 RN AND PRIME212 RN -U-
AUTHOR-(05)-AFANASYEV, V.P., BOCHVAROVA, M., GOLOVKOV, N.A., GROMOVA,
I.I., IVANOV, I.I.
COUNTRY OF INFO--USSR

A
SOURCE--LAB. OF NUCLEAR PROBLEMS. 1970. 11P. DEP. CFSTI
DATE PUBLISHED-----70

SUBJECT AREAS--NUCLEAR SCIENCE AND TECHNOLOGY, PHYSICS

TOPIC TAGS--ALPHA DECAY, SPECTROGRAPH, RADON ISOTOPE, POLONIUM ISOTOPE,
RADIOACTIVE DECAY, ASTATINE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3002/0174

STEP NO--UR/0000/70/000/000/0011/0011

CIRC ACCESSION NO--AT0127798

UNCLASSIFIED

Acc. Nr:

AP0038037

Ref. Code: UR 0056

PRIMARY SOURCE: Zhurnal Eksperimental'noy i Teoreticheskoy
Fiziki, 1970, Vol 58, Nr 1, pp **135-144**

ANALYTICAL REPRESENTATION OF THE DISTRIBUTION FUNCTION
OF OSCILLATION FREQUENCIES OF AN IDEAL CRYSTAL LATTICE

Peresada, V. I.; Afanas'yev, V. N.

A new method is proposed for analytic approximation of the distribution function of the squared harmonic oscillation frequencies of an ideal crystal lattice on basis of the force constants. The Montroll method for analytic approximation of the distribution function on basis of given numerical values of some of the first distribution function moments is improved. The method is illustrated in a concrete case.

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REEL/FRAME
19731079

2.1

68

USSR

UDC 527.511.224.44.28/289

AFANAS'YEV, V.N., STEPCHIK, A.P., TUTUROV, YU.F., FILIMONCHEVA, P.I.

"Measurement Of The Lifetime Of Carriers In Germanium And Silicon During Neutron Irradiation"

Fiz. i tekhn. poluprovodnikov (Physics And Technology Of Semiconductors), 1971, 2, No 6, pp 1067-1075 (From RZh--Elektronika i yeye primeneniye, No 10, October 1971, Abstract No 10E19)

Translation: It is experimentally established that the radiative constant in Ge and Si during neutron irradiation with an energy of 14 kev is decreased with a reduction of temperature. 6 ref. Summary.

USSR

UDC 619.616.981.42+616.982.2-084.636.22/.28

YERMAKOV, P. I., ALEKSANDROV, N. A., ~~AFANAS'YEV, V. M.~~, ALEKSEYEV, K. K., and
IKONNIKOV, V. D., Saratov Oblast Veterinary Department

"Organization of Measures to Control Brucellosis and Tuberculosis in Cattle"

Moscow, Veterinariya, No 1, 1972, pp 46-48

Abstract: The incidence of tuberculosis and brucellosis among cattle and the incidence of brucellosis among sheep in Saratovskaya Oblast (a region of south-eastern Russia on both sides of the lower Volga) built up by 1964 to the point where almost one-quarter of all the animals were suffering from chronic infection. Following a detailed study of the situation on each affected farm, comprehensive plans were drawn up to halt the spread of the diseases. These plans included regular examination of the animals for brucellosis and tuberculosis, isolation of young healthy animals to create new herds, compulsory pasteurization of milk, disinfection measures, and plowing up and liming soils on infected farms. Conference and visiting experts were organized to propagandize modern control measures. As a result of these steps, the number of affected localities was sharply reduced within five years (fourfold and twofold in the case of brucellosis and tuberculosis, respectively). The infection rate of both diseases dropped from about 2.3 to 1.1%. Efforts are now under way to eradicate these and other chronic diseases of cattle.

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USSR

AFANAS'YEV, V. K., and DMITRIYEVTSOVA, E. A., Ordzhonikidze, Izvestiya Vysshikh Uchebnykh Zavedeniy, Tsvetnaya Metallurgiya, No 5, 1972, pp 121-123

with a significant increase of strength and plasticity characteristics.
One figure, one table, four bibliographical references.

Beryllium

USSR

UDC 669.7.018

AFANAS'YEV, V. K., and DNITRIYEVSEVA, E. A., Krasnoyarsk Institute of
Non-Ferrous Metals

"The Effect of Beryllium Additions on the Microstructure and Decomposition
Character of Al-Mg Alloys"

Ordzhonikidze, Izvestiya Vysshikh Uchebnykh Zavedeniy, Tsvetnaya Metallurgiya,
No 5, 1972, pp 121-123

Abstract: The effects of small Be additions on the microstructure, the decomposition character, and some other properties of Al-Mg alloys were experimentally investigated on specimens prepared from billets containing 1-13% Mg with 0.05% Be addition and on specimens without Be. Hardened, annealed, and aged specimens and notched specimens subjected to impact loads were tested. A solid solution structure and a viscous intercrystalline failure was found to be characteristic for cast alloys. A brittle failure with separation of the Al_3Mg_2 phase took place at higher Mg content (9-13%). Two typical microstructures were observed, which are characteristic for aged and annealed alloys containing up to 7% Mg and for hardened alloys containing 9-13% Mg. On homogenization of Al-Mg alloys, Be contributes to the formation of inhomogeneous etching sites of dendritic configuration, which is connected
1/2

USSR

AFANAS'YEV, V. K., UKHOV, V. L., Problemy Prochnosti, No 4, Apr 73, pp 105-109

temperature of transition to intergranular fracture increases with a decrease in magnesium concentration in the alloy and an increase in tensile strain rate. Strength properties decrease with increasing temperature regardless of the strain rate and the magnesium content in the alloys, and at 350°C these characteristics practically coincide for all alloys.

2/2

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Mechanical Properties

USSR

UDC: 669.7.018

AFANAS'YEV, V. K., UKHOV, V. L., Krasnoyarsk Institute of Nonferrous Metals

"Influence of Tensile Strain Rate and Temperature on Some Properties of Binary Alloys in the Al-Mg System"

Kiev, Problemy Prochnosti, No 4, Apr 73, pp 105-109

Abstract: An investigation is made of the effect of strain rate and temperature factors on the mechanical properties, microstructure and type of fracture in aluminum alloys containing 1.12-11.5% magnesium. The tests were done at temperatures of 20-350°C and tensile strain rates of 10^{-3} - 10^2 mm/min. The results reveal intervals of strain rates and temperatures where the investigated alloys have low ductility. The drop in ductility corresponds to the development of porosity in the microstructure. In this case, fracture is mixed, and chiefly transcrystallite. Increasing the magnesium content and reducing the tensile strain rate broaden the temperature range of low ductility, and reduce the absolute values of ductility characteristics in this interval. At high test temperatures, the nature of fracture changes from mixed (at points of accumulation of decay products and "microporosity", and partly along grain boundaries) to intergranular. The

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USSR

UDC 639.311:663.632.8

YENGASHEV, V. G., Candidate of Veterinary Sciences, Central Laboratory of the Ichthyopathological Service, Ministry of Fish Economy RSFSR, KOZLOV, Ye. I., Candidate of Technical Sciences, VNIISKhSPGA All Union Scientific Research Institute of Agricultural and Special Use of Civil Aviation, and AFANAS'YEV, V. I., Candidate of Veterinary Sciences, Krasnodarskiy Scientific Research Institute of Pond Fishery, Ministry of Fish Economy RSFSR

"Disinfection of Fish Ponds From Airplanes"

Moscow, Rybnoye Khozyaystvo, No 3, Mar 71, pp 29-30

Abstract: In 1967, fisheries in the Moscow region began to use agricultural AN-2 airplanes for disinfecting ponds with lime. In 1969, fisheries in Krasnodarskiy Kray equipped an AN-2 plane with a different spray mechanism and obtained much better results. The rate of spray reached 42 kg of lime per second (previously, 18-20 kg/sec), and the strip covered per run was also considerably wider: 8-10 meters at an altitude of 4 m; 12-13 m from an altitude of 10m; and 15-16 m from an altitude of 15 m. For most purposes, an altitude of 10-15 m is recommended; it should be lowered to 5 m on windy days or when it is desirable to deliver a larger amount of the disinfectant per unit surface area. The spray mechanism was designed by the VNIISKhSPGA, and it can be easily installed in the AN-2 plane.

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BR

SEBELIVENTON, A. I., Soviet Patent No 124022

tion of the device; besides this, a change in the pulse repetition frequency in such devices inevitably leads to a change in the duration of these pulses, which is undesirable in a number of instances. The proposed device is distinguished as follows. A delay element is connected through a two-pole switch between the transistors of the blocking generator in the first channel. A controlling transistor is connected in the emitter circuit of the transistorized blocking generator in the first channel, whose control is connected to the mixer. A control signal from the mixer is fed into the second channel is sent to the base of the transistor, resulting in increased regulation of the number of pulses per unit of time and this pulse rate. One illustration.

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USSR

UDC: 681.332.65

SEIIVENSTOV, A. I., BELOV, L. I., LEBOVSKIY, V. N., PYSH, V. D., AFANAS'YEV, V. I.

"A Random Pulse Sequence Generator"

USSR Author's Certificate No 284022, filed 23 Dec 68, published 23 Dec 70
(from Elektronika i Yuchislitel'naya Tekhnika, No 10, Oct 71, Abstract No 10201, B)

Translation: The device is designed for generating random electrical signals which have predetermined statistical characteristics and shaping pulses which are random with respect to times of appearance, duration, and amplitude. The generator can be used for statistical modeling of various natural phenomena, technical devices, etc. It contains random pulse sequence generators which contain a source of noise which sends signals to a mixer through two channels, one of which contains a series-connected, transistorized blocking generator, and the other contains a transistorized blocking generator. The signals from the two channels are mixed in the mixer and the resulting signal is sent to a shaping circuit which generates random pulses with predetermined statistical characteristics.

2/2

AP0042368

a low response at this light modulation frequency and the signal-to-noise ratio at the required width of the feedback amplifier band is too small. This difficulty was overcome by using a specially developed photodiode of the p-i-n type which was adequately responsive in the required frequency range. Optical pumping of He⁴ atoms in a 2^3S_1 state is accomplished using circularly polarized light with a wavelength of 1.083μ . In the spin generator the light modulation signal at the Larmor frequency is fed to radio-frequency coils after amplification (the article is accompanied by a block diagram of the spin generator). The frequency range in which generation is observed is determined by the band of the feedback amplifier (in this case, 900-1,500 kc/sec, which corresponds to a range of magnetic fields from 32,000 to 54,000 γ .) The signal-to-noise ratio in the generation band is not worse than 30:1.

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7/2

de

Acc. Nr.: AP0042368

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Ref. Code: LLR0203
JPRS 50162Spin Generator with Optical Pumping for Quantum Magnetometers

(Abstract: "Spin Generator with Optical Pumping of Metastable He⁴ Atoms for Quantum Magnetometers," by V. F. Afanas'yev, R. A. Zhitnikov and P. P. Kuleshov, Physical-Technical Institute imeni A. F. Ioffe, Moscow, Geomagnetizm i Aeronomiya, Vol. X, No 1, 1970, pp 183-184)

Quantum magnetometers with optical pumping of atoms of alkali metals and He⁴ atoms in a 2³S₁-state are now in broad use. Helium magnetometers are quite preferable to those employing atoms of alkali metals. However, spin generators are being used with the latter, whereas no spin generator with satisfactory characteristics has yet been devised for the optical pumping of metastable He⁴ atoms. The authors now report the development of a spin generator for the optical pumping of metastable He⁴ atoms which make it possible to construct quantum magnetometers combining the advantages of optical pumping of He⁴ atoms and the advantages of a spin generator. The principal difficulties in creating a spin generator for the optical pumping of He⁴ atoms in a 2³S₁ state arise due to a relatively high resonance Larmor frequency of these atoms in the earth's magnetic field (~ 1.5 Mc/sec). Usually the photodiodes used in such apparatus have a large area of the p-n junction and due to a considerable capacitance have

Reel/Frame
19760318

21

2/2 032 UNCLASSIFIED PROCESSING DATE--23OCT70
CIRC ACCESSION NO--AP0105062
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE RELATIONS BETWEEN THE LEAKAGE CURRENTS AND EXCESS NOISE OF SURFACE BARRIER AU SI JUNCTIONS AND THE DISLOCATION D. WERE STUDIED. THE AU SI JUNCTIONS WERE OBTAINED FROM N TYPE MATERIAL OF SP. RESISTANCE 150-3000 OHMS-CM, THE SINGLE CRYSTALS BEING OBTAINED BY THE CZOCHRALSKI TECHNIQUE OR BY FLOATING ZONE MELTING. THE PLATES USED WERE CUT PERPENDICULAR TO THE (111) CRYSTAL AXIS. THE CURVES FOR THE LEAKAGE CURRENT OF AU SI SURFACE BARRIER JUNCTIONS AS A FUNCTION OF DISLOCATION D. TEND TO BE APPROX. LINEAR UP TO A DISLOCATION D. OF SIMILAR TO 3 TIMES 10 PRIME4. THE EXPTL. POINTS FOR THE EXCESS NOISE OF THE AU SI JUNCTIONS AS A FUNCTION OF THE LEAKAGE CURRENT LIE REASONABLY CLOSE TO A STRAIGHT LINE OF SLOPE SIMILAR TO 70 KEV-MU A. THESE RESULTS CAN BE EXPLAINED IN TERMS OF MICROPLASMA LOCALIZED AT THE STRUCTURAL INHOMOGENEITIES OF THE ORIGINAL SI. FACILITY: FIZ. TEKH. INST. IM. IOFFE, LENINGRAD, USSR.

UNCLASSIFIED

1/2 032 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--EFFECT OF DISLOCATIONS ON THE EXCESS NOISE OF SURFACE BARRIER GOLD
SILICON JUNCTIONS -U-
AUTHOR--AFANASYEV, V.F.
COUNTRY OF INFO--USSR
SOURCE--FIZ. TEKH. POLUPROV. 1970, 4(1), 125-8
DATE PUBLISHED-----70
SUBJECT AREAS--PHYSICS
TOPIC TAGS--SEMICONDUCTOR JUNCTION, CRYSTAL DISLOCATION, ELECTROMAGNETIC
NOISE, GOLD, SILICON SEMICONDUCTOR, CRYSTAL ORIENTATION, SEMICONDUCTOR
PLASMA
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1987/1988 STEP NO--UR/0449/70/004/001/0125/0128
CIRC ACCESSION NO--AP0105062
UNCLASSIFIED

2/2 071 UNCLASSIFIED PROCESSING DATE--23OCT70
 CIRC ACCESSION NO--AP0119351
 ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A STUDY IS MADE OF THE POSSIBILITY OF PRODUCING A POROUS ALUMINUM SKELETON WHICH WOULD PERMIT MANUFACTURE OF A METAL CERAMIC ANTIFRICTION MATERIAL. THE DEVELOPMENT OF A PRODUCTION PROCESS FOR POROUS ALUMINUM FROM ALUMINUM AND SODIUM CHLORIDE POWDERS OF 0.1-0.3 AND 0.1-0.2 MM PARTICLE SIZE, RESPECTIVELY, IS DESCRIBED. PELLETS WERE SINTERED IN ACCORDANCE WITH UNITED STATES PATENT NO 3276867. PELLET SINTERING QUALITY WAS DETERMINED BY MEASURING THE IMPACT DUCTILITY, HARDNESS, AND STRENGTH AT CUTOFF. THE MECHANICAL PROPERTIES OF THE CERMET ALUMINUM ARE SHOWN TO BE COMPARABLE TO THOSE OF A FILLED FLUORINE PLASTIC. THIS WILL MAKE IT POSSIBLE TO USE ALUMINUM NOT ONLY AS A HEAT TRANSFER AGENT, BUT AS A SUPPORTING SKELETON FOR METAL FLUORINE MATERIALS. ANTIFRICTION TESTS CONDUCTED IN AIR AND IN VACUUM (2 TIMES 10 PRIME NEGATIVE5 TO 5 TIMES 10 PRIME NEGATIVE6 MM HG) ON SAMPLES WITH A 50PERCENT POROSITY IMPREGNATED WITH FLUORINE PLASTIC 4, FILLED WITH GRAPHITE, LEAD, AND MOLYBDENUM SULFIDES, SHOWED THE POSSIBILITY OF THEIR USE AT SPEEDS UP TO 0.25 M-SEC AND AT PRESSURES UP TO 10 KG-CM PRIME2. ORIGINAL ARTICLE HAS 3 TABLES.

UNCLASSIFIED

1/2 071 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--DEVELOPMENT OF PRODUCTION TECHNOLOGY FOR CERMET ALUMINUM AND
INVESTIGATION OF ITS PROPERTIES -U-
AUTHOR-(05)-FEDORCHENKO, I.M., BELOBORODOV, I.I., AFANASYEV, V.F.,
NENAKHOV, A.V., MANYKIN, E.T.
COUNTRY OF INFO--USSR, UNITED STATES
SOURCE--KIEV, POKOSHKOVA METALLURGIYA, NO 3, MAR 70, PP 30-42
DATE PUBLISHED-----70
SUBJECT AREAS--MATERIALS
TOPIC TAGS--ALUMINUM, POROUS, HEAT TRANSFER, FLUIDING, GRAPHITE, LEAD,
ANTIFRICTION ALLOY, ANTIFRICTION MATERIAL, IMPACT STRENGTH, MECHANICAL
PROPERTY, CERMET
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1997/0409 STEP NO--UR/0226/10/001/003/0030/0042
CIRC ACCESSION NO--AP0119351
UNCLASSIFIED

2/2 010 UNCLASSIFIED PROCESSING DATE--30OCT70
CIRC ACCESSION NO--AP0122382
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. AFTER CITING THE ATTEMPTS
UNDERTAKEN BY A NUMBER OF RESEARCHERS WITH A VIEW TO BRINGING THE
INDEPENDENT REQUIREMENTS TO THE PRODUCTS AND NONRELATED QUALITY INDICES
INTO A UNIFIED ALL ROUND SYSTEM, THE AUTHOR GIVES HIS ATTENTION TO SOME
PROBLEMS THAT ARE OF IMPORTANCE FOR PRACTICAL SOLUTION OF THE PROBLEM OF
PRODUCT QUALITY.

UNCLASSIFIED

1/2 010 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--DEVELOPMENT OF QUANTITATIVE VALUE OF PRODUCT QUALITY INDEX -U-
AUTHOR--AFANASYEV, V.F.
COUNTRY OF INFO--USSR
SOURCE--STANDARTY I KACHESTVO, 1970, NR 5, PP 61-63
DATE PUBLISHED-----70
SUBJECT AREAS--BEHAVIORAL AND SOCIAL SCIENCES, MECH., IND., CIVIL AND
MARINE ENGR
TOPIC TAGS--QUALITY CONTROL, INDUSTRIAL STANDARD, INDEX, PRODUCTION
STANDARD
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRA--1999/0116 STEP NO--UR/0422/70/000/005/0061/0063
CIRC ACCESSION NO--AP0122382
UNCLASSIFIED

2/2 016 UNCLASSIFIED PROCESSING DATE--16OCT70
CIRC ACCESSION NO--AP0119269
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ABS. MEASUREMENTS HAVE BEEN
PERFORMED FOR THE ELASTIC SCATTERING OF 225 MEV E ON PRIME 58,60,64 NI
AND PRIME 112,118 SN ISOTOPES. THE EXPTL. RESULTS WERE ANALYZED BY
USING THE HIGH ENERGY APPROXN. FOR THE FERMI TYPE CHARGE D.
DISTRIBUTION. THE DERIVED ROOT MEANSQUARE RADII SHOW A CORRELATION
BETWEEN THE CHANGE OF THE CHARGE RADIUS OF THE ISOTOPES AND THE ORBITAL
MOMENTA (OR N SUBSHELL FILLING) OF THE ADDED N. THE RADII, DEDUCED FROM
THE TRANSITION ENERGIES OF MUONIC ATOMS, TURN OUT TO BE SMALLER.
AGREEMENT BETWEEN THE 2 EXPTS. CAN BE REACHED UNDER THE ASSUMPTION THAT
THE CHARGE D. HAS A PRONOUNCED MAX. IN THE CENTRAL REGION OF THE PRIME58
MI NUCLEUS AND IS LESS PRONOUNCED FOR PRIME118 SN. FACILITY:
PHYS. TECH. INST., KHARKOV, USSR.

UNCLASSIFIED

1/2 016 UNCLASSIFIED PROCESSING DATE--16OCT70
TITLE--ELASTIC ELECTRON SCATTERING ON NICKEL 58, NICKEL 60, NICKEL 64, AND
TIN 112, TIN 118 ISOTOPES -U-
AUTHOR-(05)-KHAVASTUNOV, V.M., AFANASEV, N.G., AFANASEV, V.D., GULKAROV,
I.S., OMELAEV, A.S.
COUNTRY OF INFO--USSR

SOURCE--NUCL. PHYS. A 1970, 146(1), 15-25

DATE PUBLISHED-----70

SUBJECT AREAS--PHYSICS, NUCLEAR SCIENCE AND TECHNOLOGY

TOPIC TAGS--ELECTRON SCATTERING, ELASTIC SCATTERING, NICKEL ISOTOPE, TIN
ISOTOPE, CHARGE DENSITY, ATOMIC RADIUS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1997/0274

STEP NO--NE/0000/70/146/J01/0015/0025

CIRC ACCESSION NO--AP0119269

UNCLASSIFIED

USSR

UDC 577.4

ZYABLOV, V. V., AFANAS'YEV, V. E., IVANOVA, L. A., SHUTIKOV, I. V.

"Results of Simulation of Three-Dimensional Codes with Error Localization"

V sb. Peredacha diskret. soobshch. po kanalams s gruppiruyushchimisya oshibkami
(Transmission of Digital Messages over Channels with Group Errors -- collection of works), Moscow, Nauka Press, 1972, pp 47-52 (from EZh-kibernetika, No 7, Jul 72, Abstract No 7V456)

Translation: Results are presented from simulating procedures on a digital computer for decoding three-dimensional iterated codes used to transmit the digital data in standard telephone channels. Error recordings for four different channels were used as the channel model. The results obtained permit us to estimate the limiting possibilities for the investigated codes and the effect of the structure, length and redundancy on the erasure probability and the probabilities of erroneous decoding of the messages. An experimental check demonstrated that the modulated versions of the three-dimensional codes are insignificantly inferior with respect to the probability of erasure to cascade codes of the same length and redundancy.

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USSR

UDC 577.4

AFANAS'YEV, V. E., BREUSOV, V. I.

"Structure of the Model of a Decoder for Implementation on a Digital Computer in a System with Successive Decoding"

V sb. Peredacha diskret. soobshch. po kanalam s gruppировushchimiya oshibkami (Transmission of Digital Messages over Channels with Group Errors -- collection of works), Moscow, Nauka Press, 1972, pp 38-47 (from EZh-Kibernetika, No 7, Jul 72, Abstract No 7V460)

Translation: A version of the Fano algorithm is described in which in order to decrease the complexity of implementing successive decoding on an all-purpose digital computer it is proposed that a table of statistically ordered error vectors be used.

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USSR

UDC 577.4

ZHUGULIN, L. F., POPOV, O. V., AFANAS'YEV, V. D.

"Increasing Transmission Reliability in a System with Interrogation without Increasing the Permanent redundancy"

V sb. Peredacha diskret. soobshch. po kanalam s gruppiruyushchimiya oshibkami (Transmission of Digital Messages over Channels with Group Errors -- collection of works), Moscow, Nauka Press, 1972, pp 56-58 (from RMh-Ribernetika, No 7, Jul 72, Abstract No 7V457)

Translation: A version of a system for two-way transmission of digital data with interrogation is described according to which the necessary condition of decoding the combination is the absence of the detected errors not only in it but also in a number of subsequent combinations. It is demonstrated that for the given code the described version permits a significant reduction of the probability of the undetected error in a number of cases at the price of an insignificant increase in the variable redundancy.

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USSR

UDC: 577.4

ZYABLOV, V. V., ~~AFANASIYEV, V. B.~~, IVANOVA, L. A., SHUTIKOV, I. V.

"Results of Modeling Three-Dimensional Codes With Error Localization"

Moscow, V sb. Peredacha diskret. soobshch. po kanalams s gruppiruyushchimisya oshibkami (Transmission of Discrete Information Along Channels With Grouped Errors--collection of works) "Nauka," 1972, pp.47-52 (from RZh--Matematika, No 7, 1972, Abstract No 7V456)

Translation: The results are given of the use of electronic digital computers for modeling decoding procedures for three-dimensional iterative codes used for the transmission of digital information in standard telephone channels. Records of errors for four different channels are used in channel modeling. The results obtained permit evaluations of the limiting possibilities for the codes and of the effect of the structure, length, and redundancy on the probability of erasure and wrong decoding of the information. Experimental verification has shown that the modeled variants of the three-dimensional codes are only slightly inferior to cascade codes of the same length and redundancy with regard to the probability of erasure. Authors' abstract

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USSR

AFANAS'YEV, S. V., and MOLOTOLOV, B. V., Fizika Metallov i Metallovedeniye, Vol 29, No 4, Apr 70, pp 890-892

Thus, slip in the Fe-3% Si alloy can be characterized by the following features:

1. Slip has a non-crystallographic character in all planes except the $\{110\}$ plane.
2. Change in yield point can be closely described by the principle of critical shear stresses for the slip system $\{110\} \langle 111 \rangle$.
3. The planes of slip are close to the planes of maximum tangential stress but not coincident with them.
4. Slip is asymmetrical for relatively positive and negative angles.

Single Crystals

USSR

UDC 669.1:939.574

AFANAS'YEV, S. V., and MOLOTOV, B. V., Institute of Precision Alloys, Central Scientific Research Institute of Ferrous Metallurgy Imeni I. P. Bardin, and Leningrad Steel Rolling Mill

"Plastic Deformation of Fe-3% Si Single Crystals under Stress"

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 29, No 4, Apr 70, pp 680-689

Abstract: An experimental study was made of slip in single crystals of Fe-3% Si. Single crystals with an orientation of (110) [001] and minimum slope of the (110) plane to the plane of the sheet from which the samples were cut ($\alpha \leq 3^\circ$), were cut into samples measuring 0.5 x 13 x 120 mm at different angles 'a' ($0 \leq a \leq 90^\circ$) to direction [001]. The samples were strained by elongation at two different rates (4×10^{-3} and 4×10^{-5} sec $^{-1}$) to the yield point. The change in the active systems of slip (for traces of slip in two mutually perpendicular planes) and the yield point in changing orientation of the samples were analyzed.

A comparison of experimental values for the angles, formed by slip traces, with calculated angles for the same slip systems did not show complete conformance with any of the inspected systems; the experimental data were closer to the results for the system $\{hkl\} \leq 111 \rangle$, than for planes of maximum tangential stress, but still with no conformance.

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2/2 019

UNCLASSIFIED

PROCESSING DATE--09OCT70

CIRC ACCESSION NU--AP0115894

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PROCESS OF SECONDARY RECRYSTN. IN THE PRESENCE OF S WAS STUDIED ON COLD ROLLED, HIGH PURITY TRANSFORMER STEEL SHEET 0.05, 0.08, AND 0.10 MM THICK TO DET. THE EFFECTS OF THE PRIMARY STRUCTURE, HEAT TREATMENT CONDITIONS, AND THE S CONTENT ON THE FINAL PRODUCT. THE STEEL CONTAINED C 0.007, MN 0.08, SI 3.05, P 0.006, S 0.0025, NI 0.04, CR 0.01, CU 0.05, AL 0.01, AND N 0.0107PERCENT. ALLOYING THE THIN SHEET IN THE ANNEALING PROCESS MADE IT POSSIBLE TO CONTROL THE SECONDARY RECRYSTN. THE STRUCTURE AND TEXTURE OF THE SECONDARY MATRIX DEPENDED ON BOTH THE INITIAL STRUCTURE AND THE AMT. OF S INTRODUCED BY DIFFUSION. AT RELATIVELY LOW S CONCNS. THE SECONDARY RECRYSTN. DEVELOPED A RIBBED TEXTURE WHEREAS AT HIGHER S CONCNS. IT RESULTED IN AN ORIENTATION NEAR (111) (110). A PRELIMINARY RECRYSTN. OWING TO HEAT TREATMENT AND A SUBSEQUENT STABILIZATION OF THE PRIMARY MATRIX BROUGHT ABOUT THE FORMATION OF A MORE PERFECT TEXTURE IN SECONDARY RECRYSTN. FACILITY: TSNIICHM IM. BARDINA, MOSCOW, USSR.

UNCLASSIFIED

1/2 019 UNCLASSIFIED PROCESSING DATE--09OCT70
TITLE--SECONDARY RECRYSTALLIZATION IN COLD ROLLED SILICON STEEL ALLOYED IN
THE ANNEALING PROCESS -U-
AUTHOR--(05)-AFANASYEV, S.V., BARYATINSKIY, V.P., GORBACHEV, V.N.,
KRYZHANOVSKIY, V.V., MOLOTOLOV, B.V.
COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK SSSR, SER. FIZ. 1970, 34(2), 276-80

DATE PUBLISHED-----70

SUBJECT AREAS--MATERIALS, MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--SILICON STEEL, METAL RECRYSTALLIZATION, COLD ROLLING,
TRANSFORMER STEEL, ALLOY COMPOSITION, METAL TEXTURE, HIGH QUALITY STEEL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1995/0190

STEP NO--UR/0048/70/034/002/0276/0280

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PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0115745

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE TECHNOLOGY USED IN MANUFG. VERY FINE, ORIENTED TRANSFORMER STEEL SHEET (0.05-0.15 MM THICK) FOR INSTRUMENTS AND APP. UTILIZING A WIDE RANGE OF FREQUENCIES IS GREATER THAN OR EQUAL TO 400 HZ DIFFERS IN MANY ASPECTS FROM THE CONVENTIONAL TECHNOLOGY USED FOR HEAVIER GAGE SHEET (0.2-0.5 MM), AS THE FINE SHEET IS MADE GENERALLY FROM HEAVIER GAGE, COLD ROLLED SHEET OF AN ORIENTED TEXTURE RATHER THAN FROM NONORIENTED MATERIAL. IN THE COURSE OF MANUFG. THE FINE SHEET, THE (110) (001) TEXTURE OF THE THICKER TRANSFORMER SHEET IS TRANSFORMED BY COLD ROLLING INTO A DEFORMATION TEXTURE (111) MEAN VALUE OF 112 WHICH AGAIN IS CHANGED TO 1K0 MEAN VALUE OF 001 BY SUBSEQUENT ANNEALING, K DEPENDING ON THE DEFORMATION RATIO AND THE TEMP. OF THE ISOTHERMAL ANNEAL. THUS, THE FINAL TEXTURE IS THAT FORMED BY PRIMARY RECRYSTN.; ITS DEGREE OF PERFECTION (WHICH DETS. THE MAGNETIC PROPERTIES OF THE MATERIAL) DEPENDS ON THE INITIAL TEXTURE AND GRAIN SIZE (BEFORE ROLLING), THE DEFORMATION RATIO APPLIED, AND THE TEMP. AND DURATION OF FINISH ANNEALING. SECONDARY RECRYSTN. IS SUPPRESSED SINCE IT WOULD BRING ABOUT TEXTURE DETERIORATION. ANNEALING AT 950-1000DEGREES FOR A PERIOD OF TIME NOT EXCEEDING THE INCUBATION PERIOD OF SECONDARY RECRYSTN. (20 SEC) OR CONTROLLED ANNEALING PERMITTING LONGER EXPOSURES TO HIGH TEMPS. IS RECOMMENDED; THE FORMER TREATMENT MAY NOT BE FOLLOWED BY A SECONDARY ANNEAL. THE TECHNOLOGICAL GUIDELINES GIVEN PERMIT THE MANUF. OF FINE SHEET EXHIBITING SP. CORE LOSSES OF SIMILIAR TO 12W-KG. FACILITY: TSNIIICHM IM BARDINA, MOSCOW, USSR.

UNCLASSIFIED

1/2 019 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--PRODUCTION OF NEW BRANDS OF VERY FINE TRANSFORMER STEEL -U-
AUTHOR-(05)-AFANASYEV, S.V., BARYATINSKIY, V.P., GORBACHEV, V.N., YELTSIN,
YU.V., KOVALEV, P.M.
COUNTRY OF INFO--USSR A
SOURCE--IZV. AKAD. NAUK SSSR, SER. FIZ. 1970, 34(2), 272-5
DATE PUBLISHED-----70
SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR, MATERIALS
TOPIC TAGS--TRANSFORMER STEEL, METAL ROLLING, ELECTRICAL PROPERTY, STEEL
MANUFACTURE PROCESS, STEEL SHEET, ANNEALING
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAE--1994/1936 STEP NO--UR/0048/70/034/002/0272/0275
CIRC ACCESSION NO--AP0115745
UNCLASSIFIED

2/2 036

UNCLASSIFIED

PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0129463

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE MECHANISMS OF PLASTIC DEFORMATION IN FE-3PERCENT SI SINGLE CRYSTALS SUBJECTED TO TENSILE STRAIN WERE STUDIED WITH SPEICAL REF. TO THE QUESTION OF SLIP. SLIP IN GENERAL WAS OF A NON CRYSTALLOGRAPHICAL CHARACTER WITH RESPECT TO ALL PLANES EXCEPT THE (110); THE SLIP TRACES DID NOT CORRESPOND TO SPECIFIC TYPES OF SLIP PLANE. THE SLIP PLANES WERE CLOSE TO THE PLANES OF MAX. TANGENTIAL STRESS, BUT FAILED TO COINCIDE COMPLETELY WITH THESE.

UNCLASSIFIED

1/2 036

UNCLASSIFIED

PROCESSING DATE--04DEC70

TITLE--PLASTIC DEFORMATION OF IRON 3PERCENT SILICON SINGLE CRYSTALS

SUBJECTED TO TENSILE STRAIN -U-

AUTHOR-(02)-AFANASYEV, S.V., MOLOTILOV, B.V.

COUNTRY OF INFO--USSR

SOURCE--FIZIKA METALLOV I METALLOVEDENIE, APR. 1970, 29(4), 890-892

DATE PUBLISHED-----70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--PLASTIC DEFORMATION, SINGLE CRYSTAL, STRAIN, STRESS ANALYSIS,
IRON, SILICON, CRYSTAL LATTICE STRUCTURE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3003/0207

STEP NO--UR/0126/70/029/004/0890/0892

CIRC ACCESSION NO--AP0129463

UNCLASSIFIED

2/2 012 UNCLASSIFIED PROCESSING DATE--11SEP70
CIRC ACCESSION NO--AP0103820
ABSTRACT/EXTRACT--(U) GP-O- ABSTRACT. INFLUENCE OF DIFFERENT FACTORS IS
REVIEWED BASED ON LITERATURE DATA WITH THE CONCLUSION THAT STEELS MADE
IN O BLOWN CONVERTS ARE SUPERIOR TO ANALOGOUS STEELS MADE IN OPEN
HEARHS.

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